



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,241	09/18/2000	Andreas Hajek	Hoeger-422	4110

7590

07/24/2003

Edward J Timmer
Walnut Woods Centre
5955 W Main Street
Kalamazoo, MI 49009

EXAMINER

EGWIM, KELECHI CHIDI

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 07/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,241

Applicant(s)

HAJEK ET AL.

Examiner

Dr. Kelechi C. Egwim

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

1. As per applicant's arguments present in the appeal brief filed 5/22/03, the finality of the rejection of the last Office action is withdrawn. Prosecution is reopened.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-7, 9, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. (EP 639539) in combination with Hwa et al. (USPN 3,661,994). The citations from Krieg et al. are from the English translation.

Krieg et al. teach filled molding compositions, which are known to be useful in bathroom and kitchen molded parts (see page 3 of the translation), comprising a poly(methyl methacrylate) syrup (PV-comprised of methyl methacrylate monomer in liquid PMMA (PM)) containing 1 to 15 percent by weight, based on the syrup, of PMMA having a molecular weight from about 10,000 to 400,000 (PM) (see page 6 bottom of ¶ 3 to page 7 ¶ 2), 30 to 80 percent of inorganic filler (FS) (see 5 ¶ 5) and 1 to 20 percent of solid particulate polymers (PP) which have particle sizes especially ranging from 0.13 to 0.15 mm (30 microns to about 150 microns) (see page 12, ¶ 2).

Further, in page 12, ¶ 2, Krieg et al. teach the solid particulate polymer (PP) to be optionally crosslinked and to be prepared as described in DE 2135828 to Fink et al.,

Art Unit: 1713

which, in the abstract, teaches the solid particulate elastomer polymer particles to have glass transition temperatures below 35 °C, suggesting that they are elastomeric.

Krieg et al., above, differs from the claimed invention in that it is not explicitly disclosed to comprise elastomers. However, it is known in the art to incorporate particulate elastomeric polymers with an elastomer core and matrix compatible shell elastomers into rigid elastomeric molded part such as from poly(methyl methacrylate), for the purpose of imparting improved impact strength onto the products through the elastomer whilst maintaining good adhesion between the elastomer (core) and the continuous matrix phase through the matrix compatible outer shell, such as taught by Hwa et al. (See col. 1, lines 28-30 and 65-72).

In col. 1, lines 24-30 and 64-72, col. 3, lines 15-22 and col. 4, lines 1-7, Hwa et al. teach that rigid plastic parts from poly(methyl methacrylate) can be improved by reinforcing then with elastomeric particles, wherein the elastomeric particles are grafted with an outer matrix compatible layer to improve compatibility with the rigid polymer matrix, thereby forming a core/shell structure. Hwa et al. teach that such elastomer particles may comprising up to four layers, wherein at least one core layer comprises an elastomer layer and the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate.

In col. 4, lines 8-19, Hwa et al. expresses the elastomer (rubber) content of the particles in terms of the elastomer replaced (see figure 4), being preferable from 0.5 to 30% (about 15 to 60% of particle thickness is core/elastomer).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use elastomeric core/shell particles as taught in Hwa et al., as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to improved impact strength in the products whilst maintaining good compatibility, such as taught by Hwa et al., motivated by a reasonable expectation of success.

4. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in combination with Hofmann (USPN 4,180,529) or Henton et al. (WO 88/05450)

Krieg et al., above, differs from the claimed invention in that it is not explicitly disclosed to comprise elastomers. However, it is known in the art to incorporate particulate elastomeric polymers with an elastomer core and matrix compatible shell elastomers into rigid elastomeric molded parts such as from poly(methyl methacrylate), for the purpose of imparting improved impact strength onto the products, whilst maintaining good adhesion between the elastomer particles and the continuous matrix phase and/or whilst reducing the stress whitening of the products and maintaining good weatherability, such as taught by Hofmann (See col. 1, lines 19-25 and 42-52) or Henton et al. (See page 3, lines 4-26).

In col. 1, line 55 to col. 2, line 4, col. 2, lines 31-46, col. 3, lines 50-68 and col. 4, lines 5-7, Hofmann teaches elastomer (resilient) particles used to reinforce rigid plastics such as poly(methyl methacrylate), wherein the elastomer particles comprising up to

Art Unit: 1713

four layers, wherein at least one core layer comprises an elastomer layer and the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate.

Hofmann teaches the outer layer of the particles to optionally be crosslinked and the core stages to comprise about 60 to 95 % of the elastomer particles.

In page 1 ¶ 1, page 3 ¶ 2, page 5 ¶ 2, page 6 ¶ 3 and page 7 ¶ 3, Henton et al. teach elastomer particles used to reinforce rigid plastics such as poly(methyl methacrylate), wherein the elastomer particles comprising at least one core elastomer layer and at least one the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate. Henton et al. teach the outer layer to be at least partially crosslinked and the core stages to comprise from about 1 to 99 % of the particles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use elastomeric core/shell particles as taught by Hofmann or Henton et al. as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to obtain the advantages taught by Hofmann or Henton et al., motivated by a reasonable expectation of success.

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in combination with Alsmarraie et al. (USPN 5,087,662).

Krieg et al., above, differs from the claimed invention in that it is not explicitly disclosed to comprise elastomers. However, it is known in the art to incorporate particulate elastomeric core/shell polymers with an elastomer core and matrix compatible shell elastomers into rigid elastomeric molded parts such as from

Art Unit: 1713

poly(methyl methacrylate), for the purpose of imparting increased impact strength onto the products, such as taught by Alsmarraie et al. (See col. 5, lines 10-14).

In col. 5, lines 10-14, col. 7, lines 12-31 and col. 12, lines 13-26, Alsmarraie et al. teach elastomer (resilient) particles used to reinforce thermoplastics, wherein the elastomer particles comprise a polyorganosiloxane elastomeric core and at least one outer layer is a matrix compatible layer from a monomer such as methyl methacrylate, grafted together with graftlinking (crosslinking) monomers and the core stage comprises about 5 to 95% of the particles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use the polyorganosiloxane/acrylate elastomeric core/shell particles of Alsmarraie et al. as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to obtain the impact strengthening advantages taught by Alsmarraie et al., motivated by a reasonable expectation of success.

6. Applicant's arguments are moot in view of the new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kelechi C. Egwim whose telephone number is (703) 306-5701. The examiner can normally be reached on M-T (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for

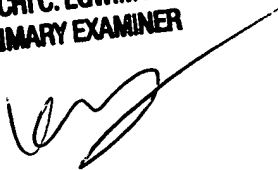
Art Unit: 1713

the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-

0661

KELECHI C. EGWIM PH.D.
PRIMARY EXAMINER



KCE

July 21, 2003